

تاتاری

۳۱ سرواوا ۹۸



Covid 19 management

- Dr.A.Abedini MD

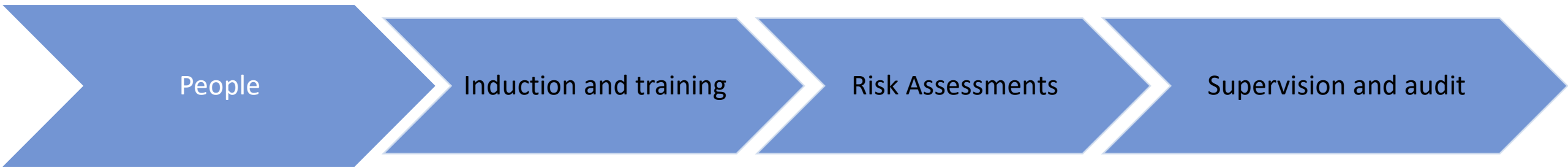
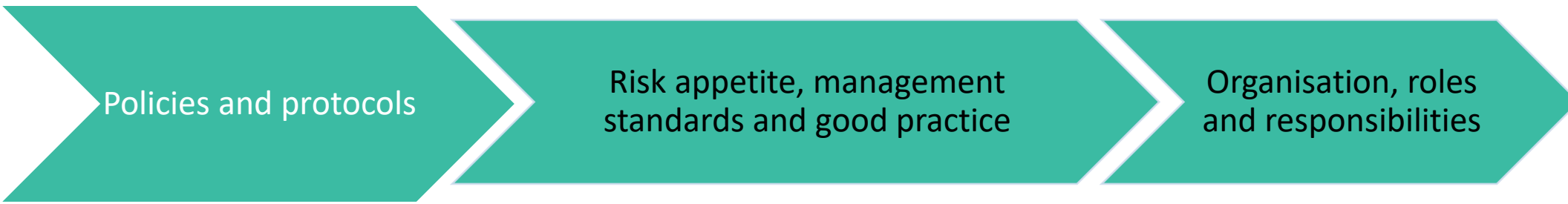
Interventional pulmonologist

Shahid Beheshti university

Who's
been
thinking?

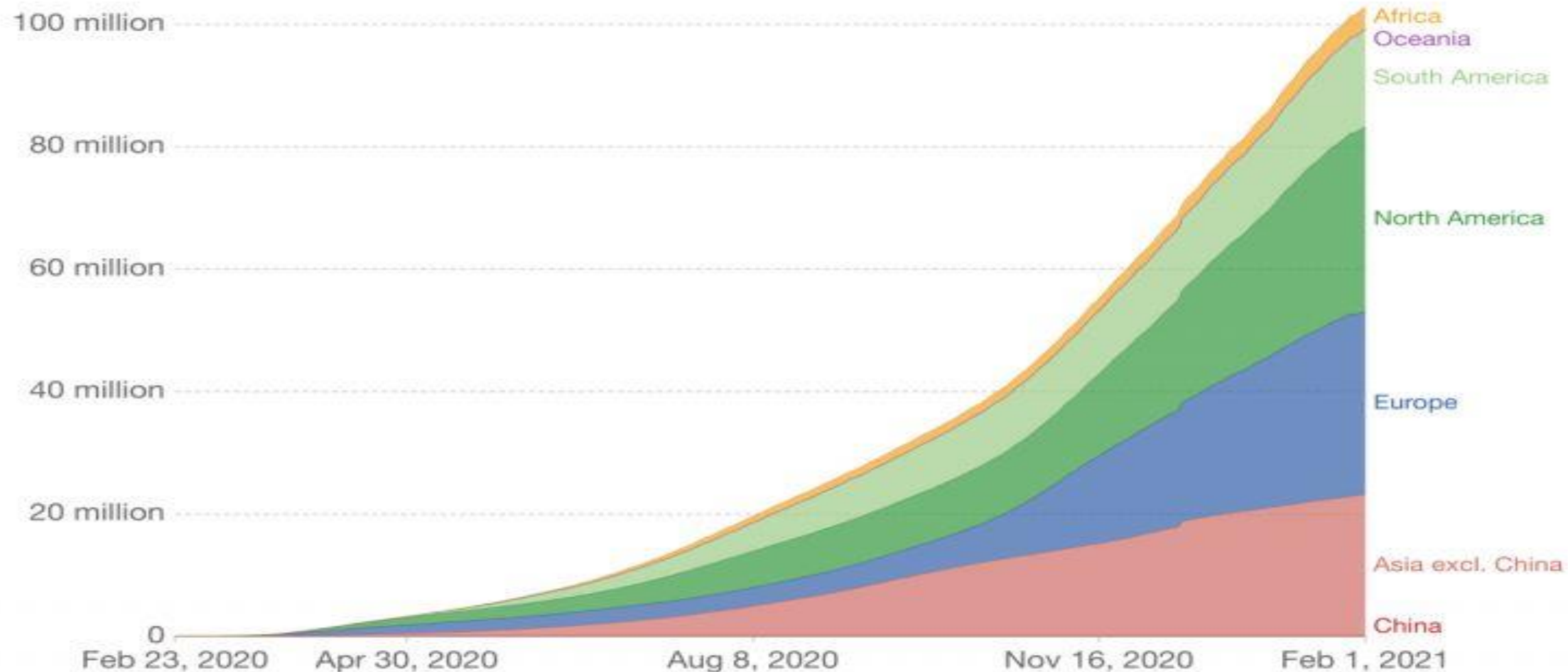
**A lot of
people!**





Cumulative confirmed COVID-19 cases

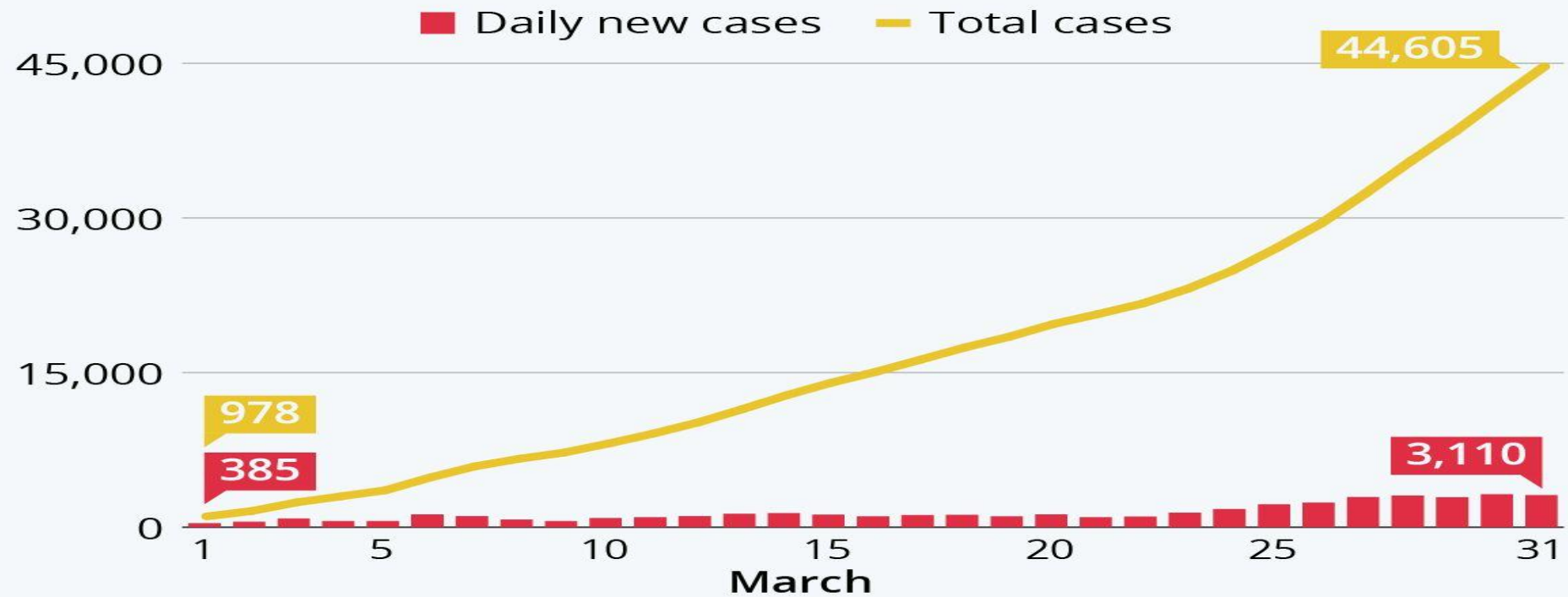
The number of confirmed cases is lower than the number of actual cases. The main reason for this is limited testing.



Source: Johns Hopkins University CSSE COVID-19 Data – Last updated 2 February, 09:02 (London time)
OurWorldInData.org/coronavirus • CC BY

COVID-19: Iran

Total number of COVID-19 cases and daily number of new cases in Iran



As of March 31, 2020

Source: Johns Hopkins University



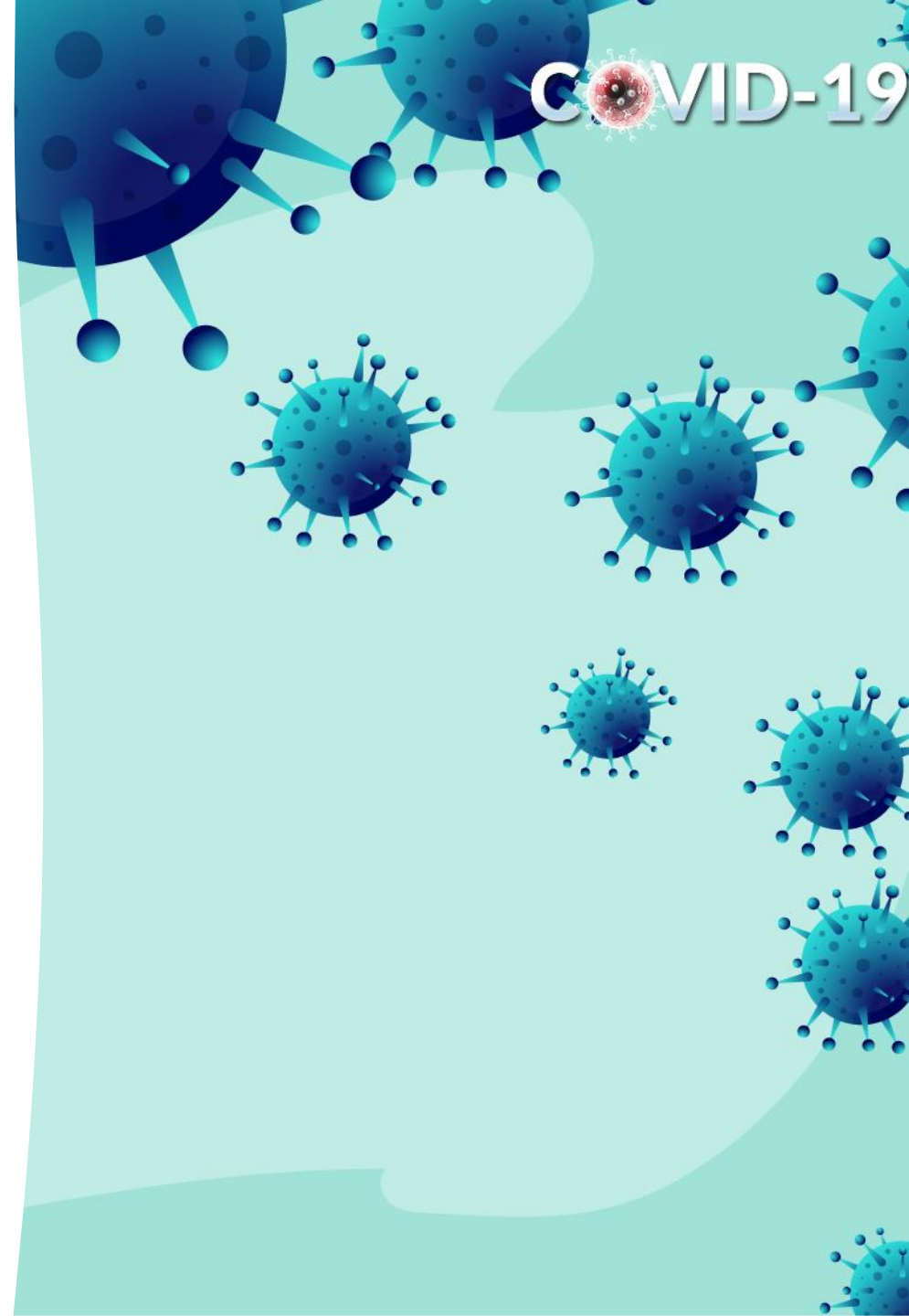
COVID-19 Infection: Background



- Current evidence suggests that the virus that causes COVID-19 is transmitted between people through close contact and droplets.
- People most at risk of acquiring the disease are those who are in contact with or care for patients with COVID-19.
- This inevitably places health care workers (HCW) at high risk of infection.
- Understanding how HCW exposure to COVID-19 virus translates into risk of infection, it is critical to adhere to prevention and control recommendations.
- Eventually many facilities will be receiving positive COVID-19 patients who will require care.

What we know about coronavirus and disease (COVID-19)

- Coronaviruses are a group of viruses belonging to the family of Coronaviridae, which infect both animals and humans
- Human coronaviruses can cause mild disease similar to common cold, while other cause more severe disease and examples are:
 - MERS (Middle East Respiratory Syndrome)
 - SARS (Severe Acute Respiratory Syndrome)
- A new coronavirus that previously has not been identified in humans emerged in humans in Wuhan, China in December 2019



COVID-19 can produce many symptoms that range in severity. Most people will experience mild symptoms, but some people may show no symptoms—while others may become dangerously ill.

Symptoms

COVID-19



Fever



Shortness of breath



Cough



Anosmia - loss of sense of smell



Sore throat



Dysgeusia - changes in sense of taste

Routes of Transmission

There are two known routes of transmission
(WHO recommendations)

1

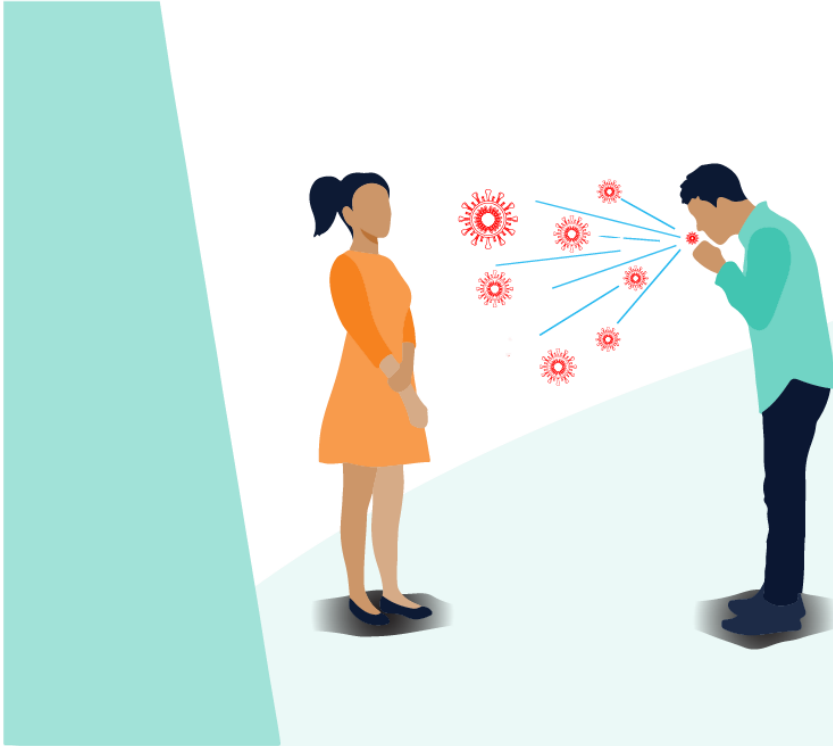
Via respiratory droplets produced via sneezing, coughing which is directly inhaled person to person.

2

Via respiratory droplets landing on environmental surfaces surrounding the infected person (also known as the patient zone and the health zone) which are then transferred by the contact route via contaminated hands to a person's face and mucous membranes.

Routes of Transmission

COVID-19



Person-to-person



Environmental surfaces

How to prevent COVID-19

COVID-19



Correct cough etiquette and respiratory hygiene



Do not touch your face unless your hands are clean



Frequent hand washing with water and soap



Keep a distance of 1.5 to 2 m when in contact with other people



Appropriate use of personal protective equipment



Use of alcohol-based hand rub (ABHR)

Maintain Physical Distancing

Keep a distance of at least
2 metres (3 steps) away
from other people





COVID-19 Isolation Area Droplet and Contact Precautions

COVID-19



COVID-19 Isolation Area
Droplet and Contact Precaution



All Persons



Perform hand
hygiene



Wear a
surgical mask

Nurses, Doctors, Clinical Staff



Wear an apron
or gown



Wear gloves

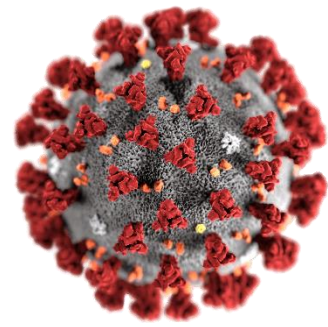


Wear N95
respirator



Wear eye
protection

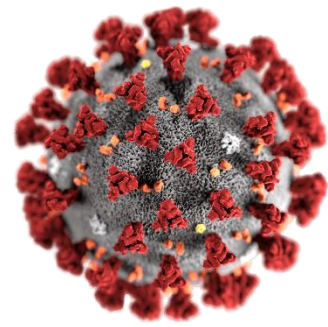
Epidemiology



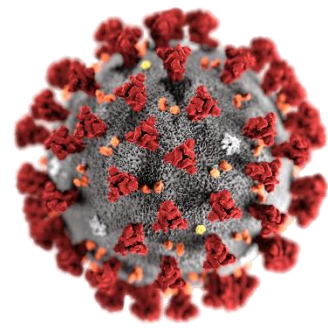
“the branch of medicine which deals with the **incidence, distribution,** and **possible control** of diseases and other factors relating to health.”

- Incidence
- Prevalence
- R_0 and R
- Case Fatality Rate
- Mortality Rate
- Prevention
- Infection, Prevention and Control (IPC)

Epidemiology



- Outbreak: “more disease than would be expected”
 - e.g. measles outbreaks
- Endemic: “diseases that remain in an area naturally”
 - Outbreaks can also occur in endemic areas
 - Endemic diseases can be exported to other places, causing outbreaks
- Public Epidemic: “regional outbreak of a disease that spreads suddenly and unexpectedly”
- Pandemic: “worldwide, often rapid, spread of a disease”
 - WHO declares and has implications for activation of worldwide response, national response, World Bank funding, etc.



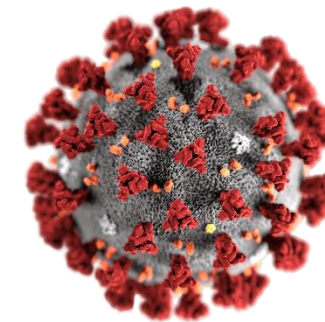
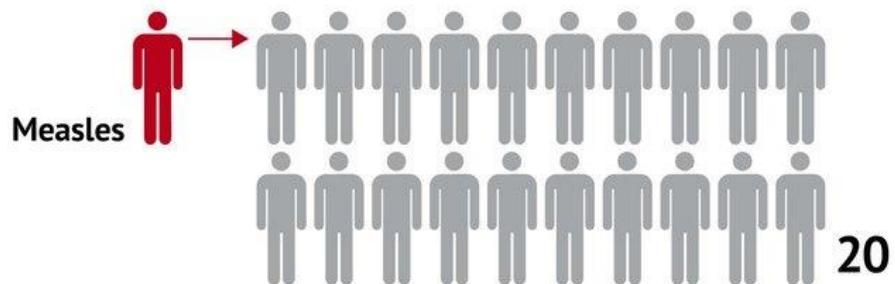
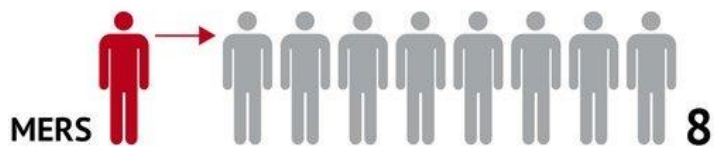
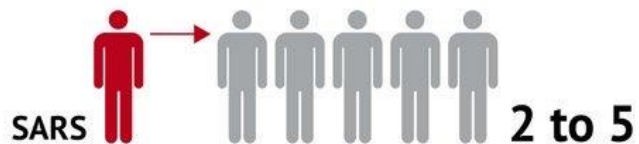
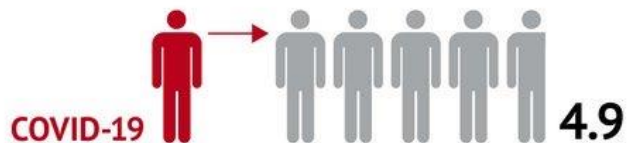
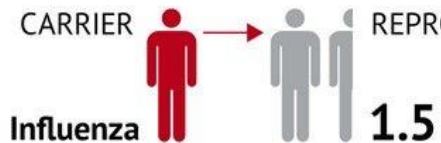
Basic Reproduction Number (R_0)

- “Number of cases directly generated by one case in completely susceptible population without interventions”
- Effective Reproduction Number (R): “number of cases generated by one case with interventions/immunity”
 - Some individuals immunized or already infected/recovered
 - Nonpharmaceutical Interventions (NPI) implemented (social distancing, quarantines, isolation, treatment)

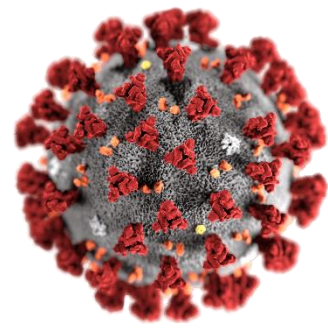
How contagious is the new coronavirus?

Scientists measure how contagious a virus is using 'reproduction numbers' - the likely number of people every sick person will infect assuming the whole population is susceptible.

CARRIER → REPRODUCTION NUMBER



- Typically cited as 2-3 but may be as high as 4.9; varies by population density and exposure patterns
- Probably about twice as transmissible as influenza

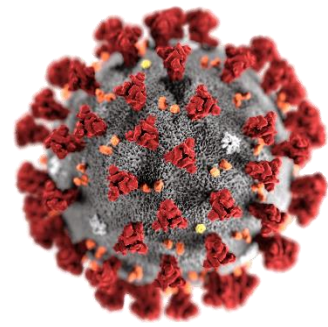


Case Fatality Rate

- **Case fatality rate/risk/ratio (CFR)** is the ratio of deaths from a certain disease to the total number of people diagnosed with this disease for a certain period of time

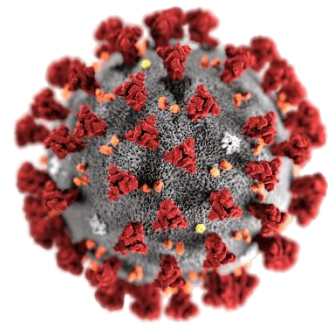
$$\text{Deaths/Total Cases} = \text{CFR}$$

- During epidemics, CFR often initially over-estimated as predominantly testing cases that are sicker in hospital (numerator); then CFR is under-estimated as increase testing of mild cases (denominator) that have not yet resolved (recovered or died)
 - Longer time to resolution or death can make CFR look better than it really is until final outcome



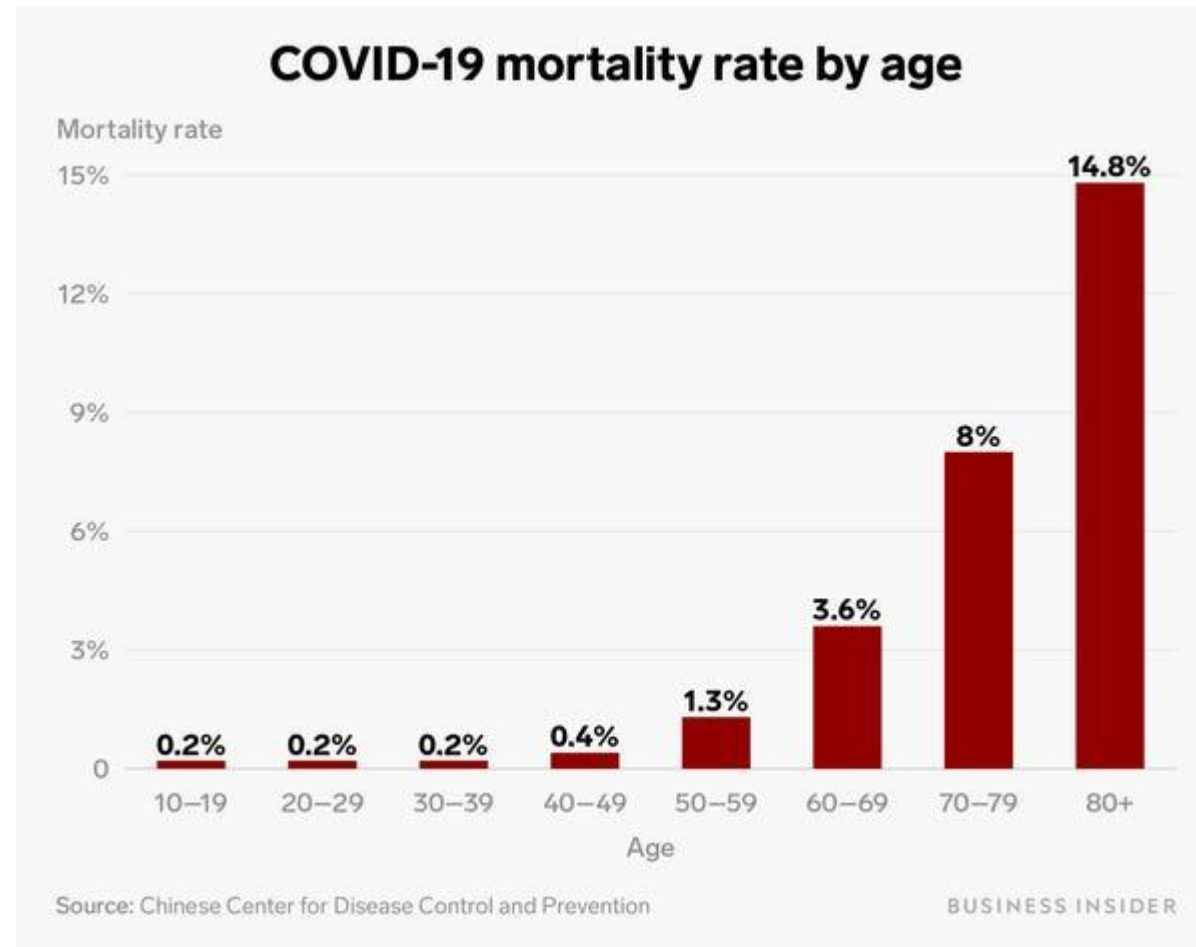
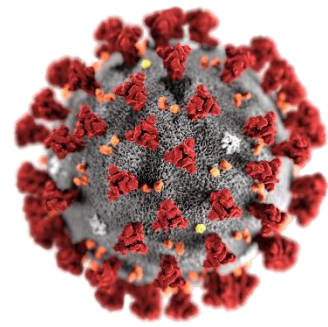
Mortality Rate

- Mortality rate (death rate): Number of deaths in general or due to specific cause in particular population per unit of time.
e.g. mortality rate of influenza per week is total deaths related to influenza
- Epidemic threshold: level of incidence (of disease or of death) above which an urgent response is needed; varies by disease.
e.g. For influenza, if the mortality rate $>7.3\%$ that is, by definition, an epidemic. Once it drops below that, it is no longer epidemic. CFR is 0.1% but the mortality rate per week in the hospital will rise and fall.



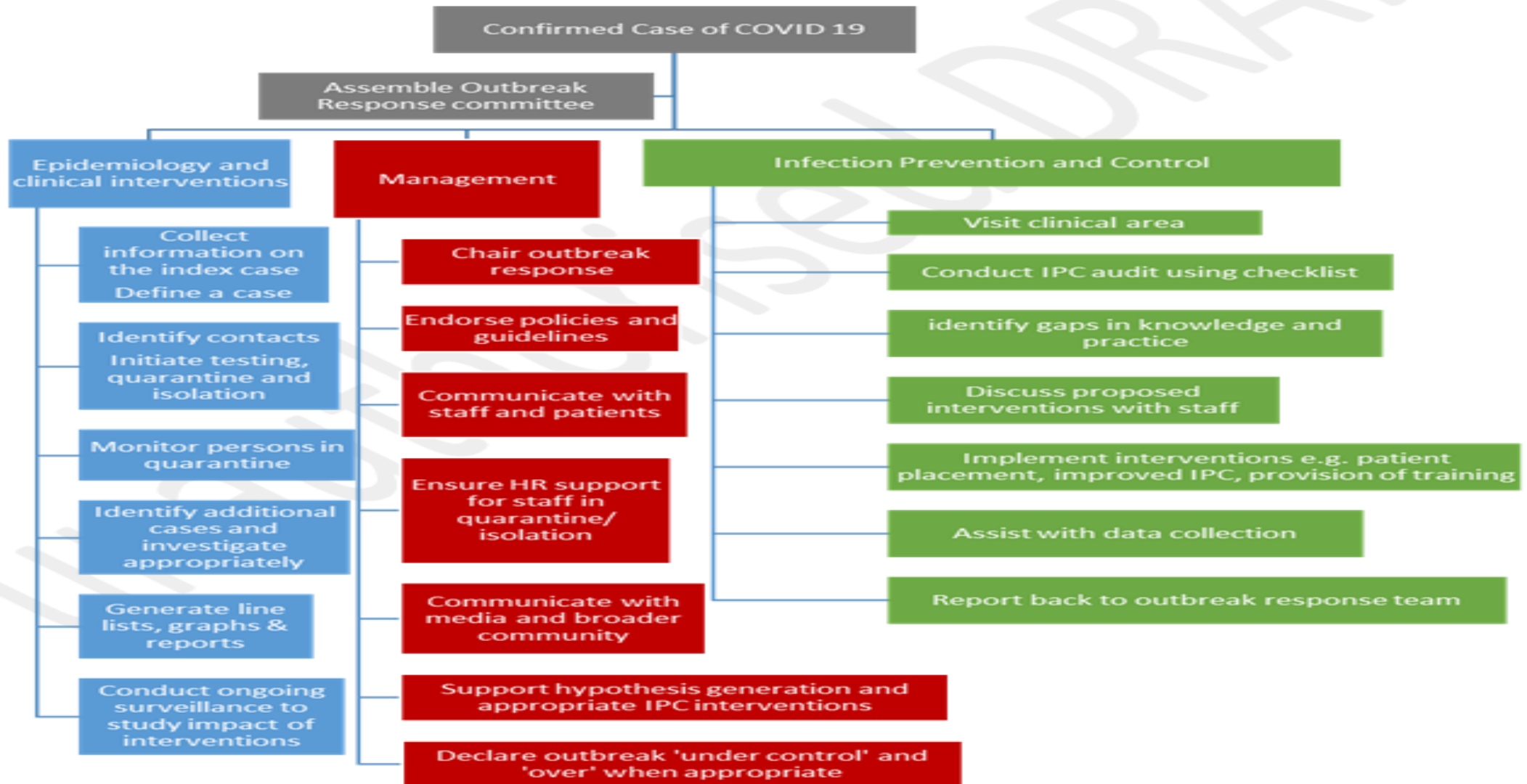
Case Fatality rate

- COVID-19: **0.7 to 3.4%** (>5% in Wuhan itself during peak)
 - Will be higher without access to healthcare, oxygen and ventilators
- Spanish Influenza 1918: **>2.5%** Mostly younger people
- Seasonal Influenza: **0.1-0.2%**

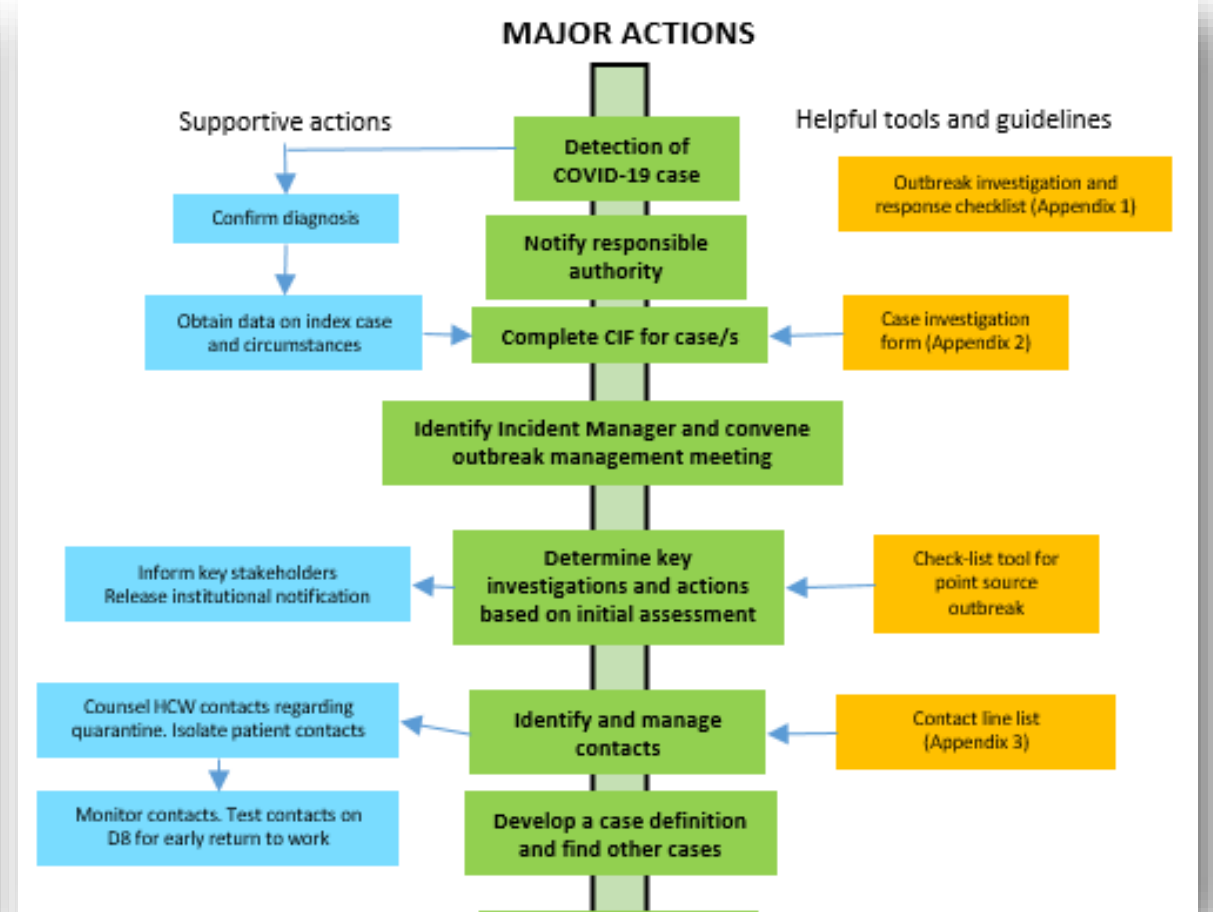
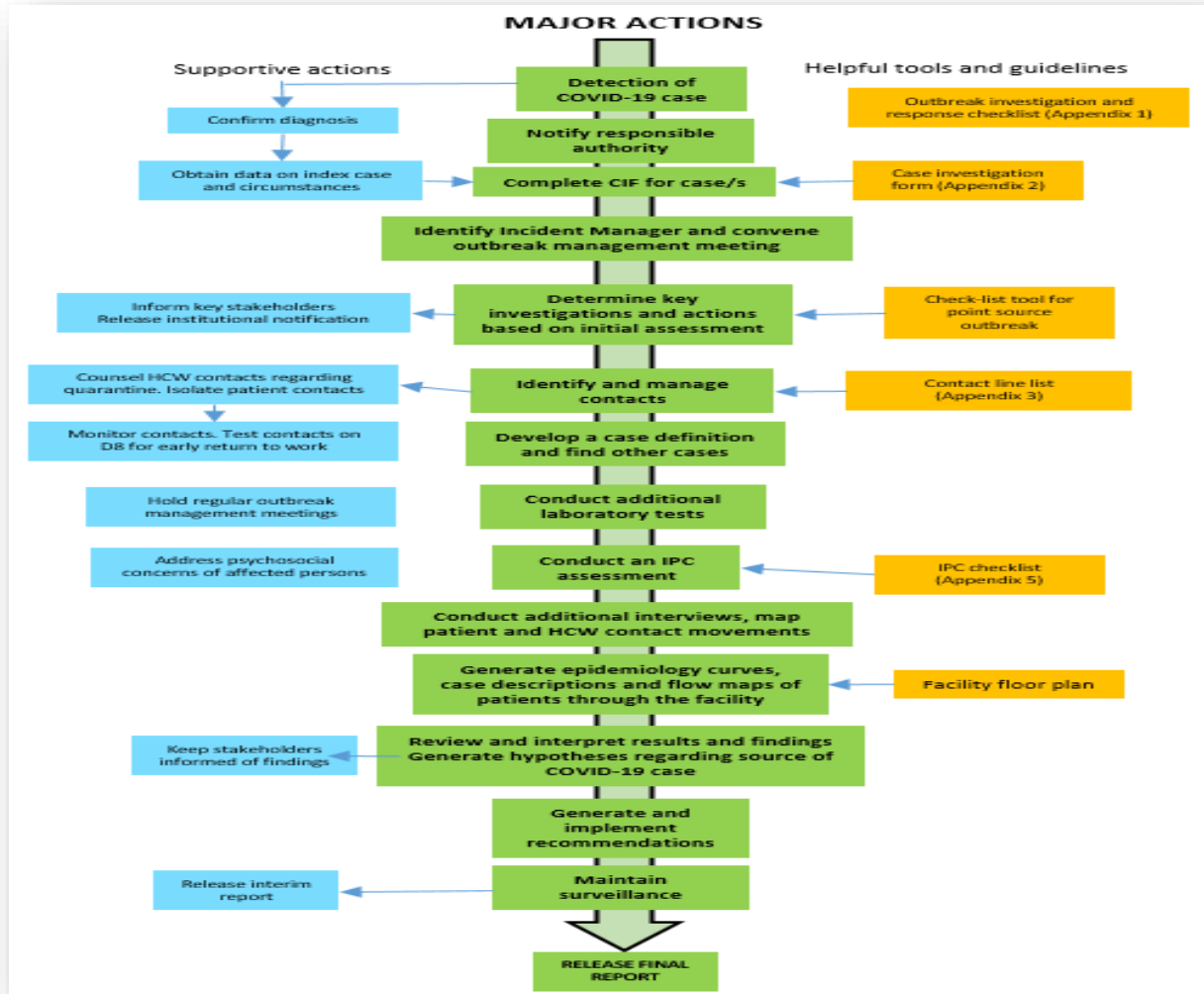


- CFR with Comorbidities: 10.5% cardiovascular disease, 7% diabetes, 6% each for chronic respiratory disease, hypertension, and cancer. Case fatality for patients who developed respiratory failure, septic shock, or multiple organ dysfunction was 49%.

Steps in outbreak investigation and response

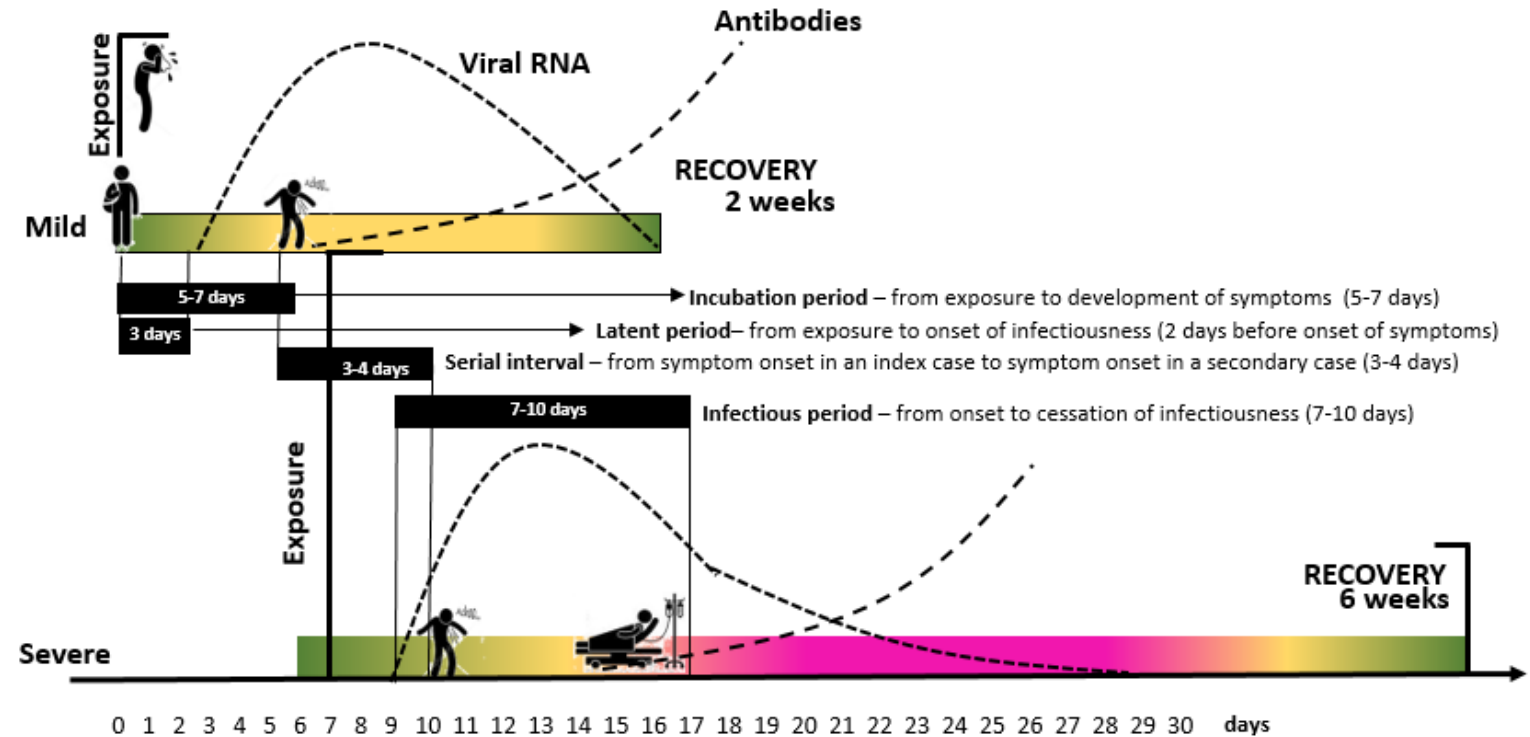


Steps in outbreak investigation and response



Initial response: Determine the infectious period

- A person is deemed infectious for 48 hrs before symptom onset (or test date if asymptomatic), until 14 days post symptom onset
- Determine the
 - dates that the person was in the facility whilst infectious
 - Where the person was on those dates
- Use these dates to determine who the contacts are



Vaccine



Treatment !!!!



Information

- Social media

Books

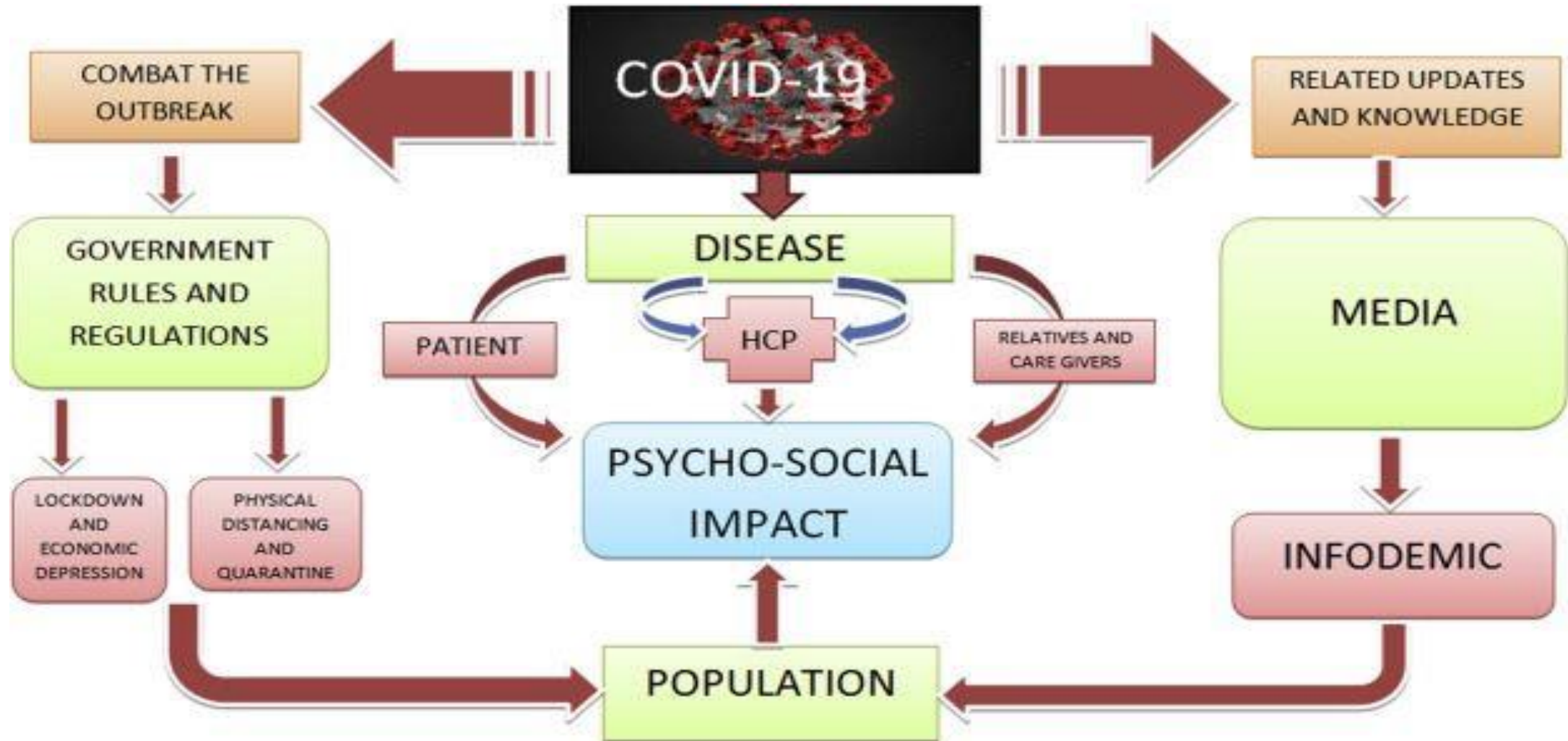
Article

TV

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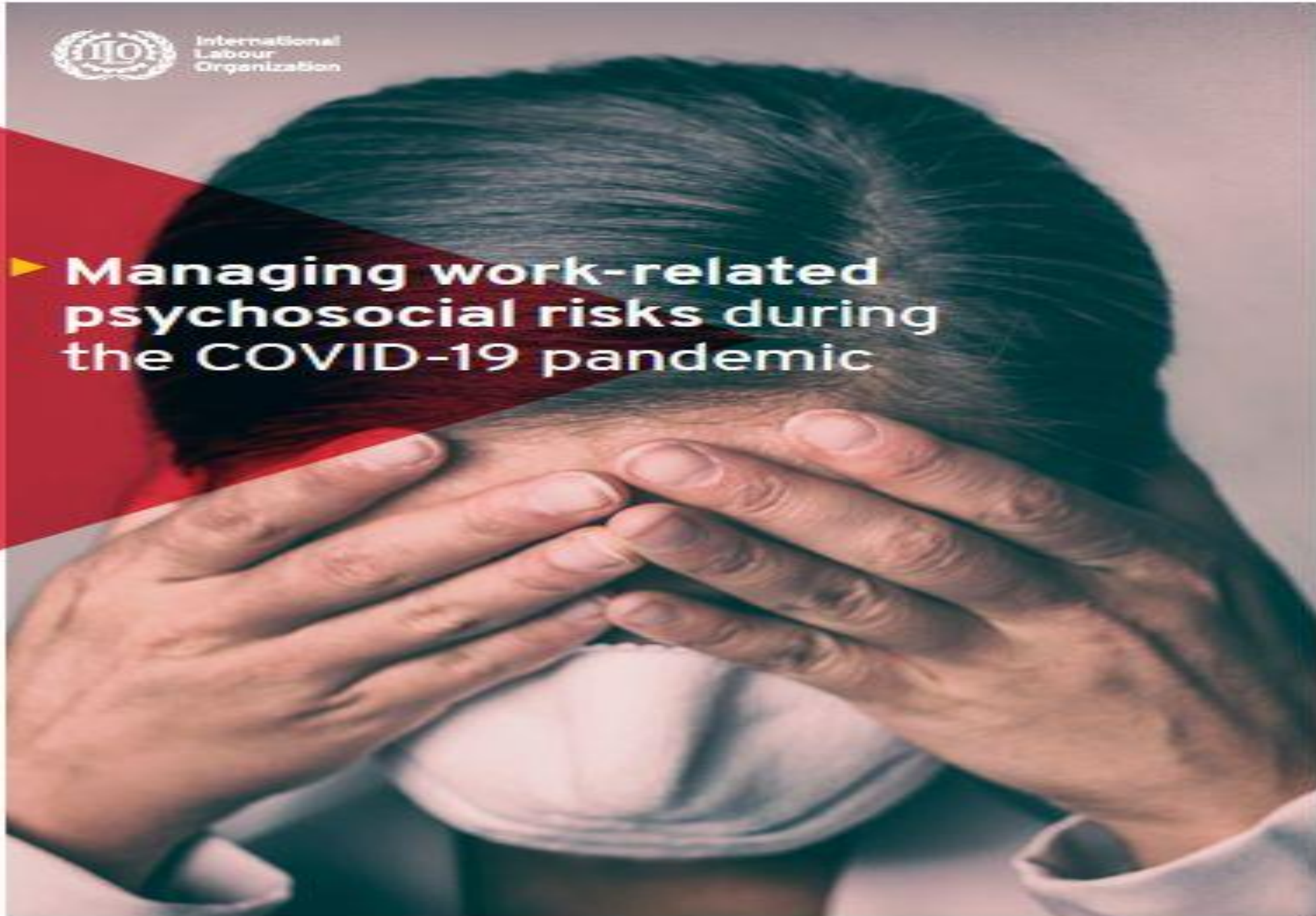
Psychosocial effects





International
Labour
Organization

▶ **Managing work-related
psychosocial risks during
the COVID-19 pandemic**





Questions?

Thank you

